Dry Solutions Inc. - Basic DHU

Carel PGD User Interface Navigation

MPC

11/16/2017

Home Screen featuring Quick Access Menus

The **Home Screen** displays space dew point and space temperature in degrees Fahrenheit. The unit status is also displayed. From any screen, press the Escape button until display returns to Home Screen.

The **Program Menus** are password protected. Two levels of accessibility are available: Service Technician and Manufacturer. When the Program button is pressed, one of these passwords must be entered. Once in the Program menus, all screens are visible; however, each screen is protected by one of these passwords in order to modify configuration settings.

The **Quick Access Menus** are not password protected allowing for an operator to modify Run Mode, Set Points, and monitor Unit/IO status. To go to the Quick Access Menus, Arrow Up or Arrow Down to scroll the ON/OFF symbol, the SET symbol, and the information symbol; then press ENTER to select the menu.

<u>ON/OFF – RUN Mode</u> Quick Access Menu

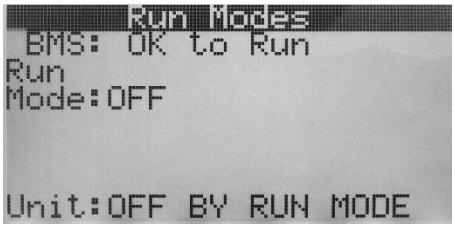
<u>Set Points</u> Quick Access Menu

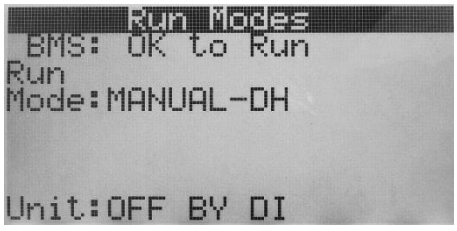
<u>Information – I/O Status</u> Quick Access Menu

I. Quick Access Menus

A. Quick Run Menu

1. ON/OFF - Run Mode





ON/OFF-Run Mode

BMS: "BMS: OK to Run" is tied to a BMS point that allows a Building Management System to start and stop the unit. The BMS point can be overridden via keypad on this screen. If no BMS exists, this setting should stay at OK to Run.

RUN MODE: To Change Run Mode: ENTER down to Run Mode. Arrow Up to scroll the run options: Auto, Manual – Supply Fan, Manual- DH, and OFF. ENTER to select.

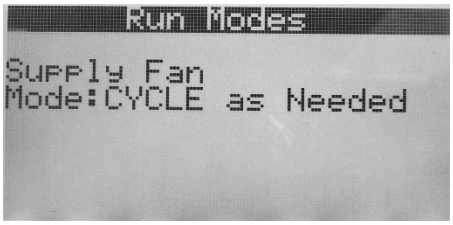
AUTO: Unit runs when there is a DH Call according to Dew Point.

MANUAL- Supply Fan: DH and Temp control disabled - supply fan runs continuously

MANUAL– DH: Call for DH is forced on causing unit to run.

OFF: Unit is disabled.

2. Supply Fan Mode

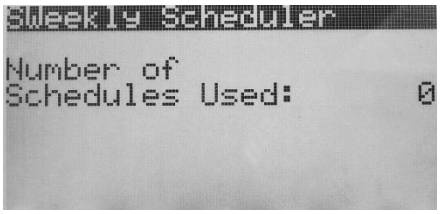


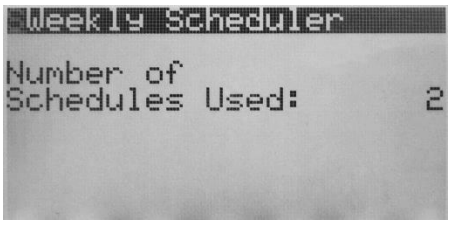
Supply Fan Mode

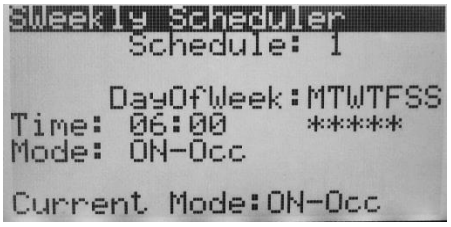
CYCLE as Needed: Supply Fan will only run on DH Call.

CONSTANT: Supply Fan runs continuously with or without DH Call.

3. Schedule







Scheduler: Unit On/OFF may be controlled by a weekly scheduler. If not using the scheduler, the Number of Schedules must be 0.

Number of Schedules: Change the number of schedules. Two schedules will be needed to turn the unit on and off - one schedule turns on the unit and one schedule turns off the unit.

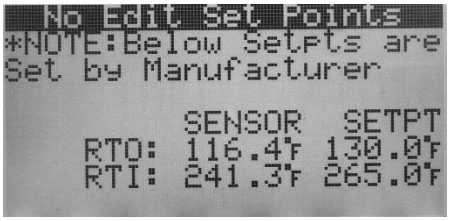
Schedule Set Up: Select the schedule number of the schedule to configure. Select the Time that the action is to take place. Select the days this action is to take place. Select the Mode to define the action. Then select a different schedule number and repeat.

Example shown: Schedule 1 turns the unit ON at 6:00am Monday through Friday. Schedule 2 then turns the unit OFF at 2:30pm Monday through Friday.

B. Quick Set Point Menu

1. Dew Point Set Point

2. Regen Set Points – No Edits



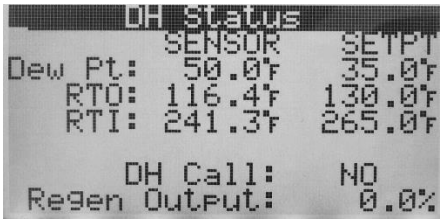
Set Points

Dew Point set point may be modified on this page. ENTER down to set point and UP and DOWN ARROW to increase and decrease the set point. ENTER to confirm.

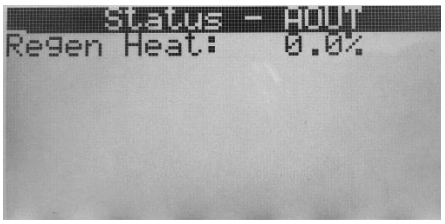
RTO and RTI set points are set by the manufacturer. This screen is for monitoring purposes only.

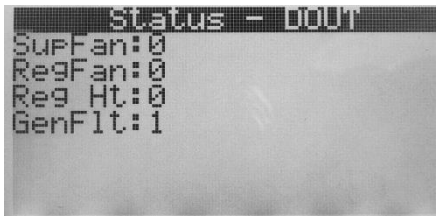
C. Quick Info Menu

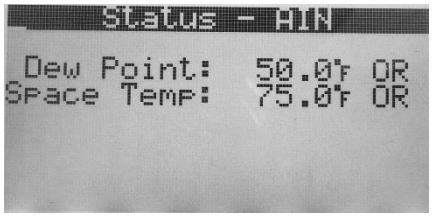
1. DH Unit Status



2. Input/Output Status







DH Unit Status (For monitoring only)

The first screen displays a quick overall status of the unit.

Input/Output Status

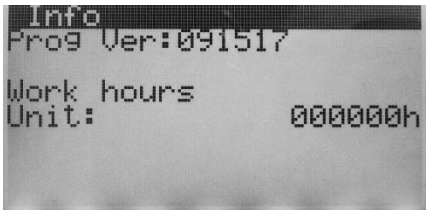
Analog Outputs: Change the number of schedules. The value 0.0-100.0% corresponds to the output range typically 0-10V. "**OR"** next to the output indicates the output has been overridden in the Program/Unit Config/Output Override Menu.

Digital Outputs: "**0"** indicates the output is off – a normally open relay is open. "**1**" indicates the output is on – a normally open relay is closed. "**OR"** next to the output indicates the output has been overridden (forced ON or OFF) in the Program/Unit Config/Output Override Menu.

Analog Inputs: Sensor readings are displayed. "**OR"** next to the input indicates the input has been overridden in the Program/Unit Config/Input Override Menu.

Digital Outputs: "**0"** indicates the input is off – a normally open sensor/relay contract is open. "**1**" indicates the input is on – a normally open sensor/relay contact is closed. "**OR"** next to the output indicates the output has been overridden (forced ON or OFF) in the Program/Unit Config/Output Override Menu.

3. Work Hours



4. C.pCO Time Info

Information

Program Version: Program revision date is displayed.

Work Hours: The controller keeps track of the number of hours the unit is ON.

Controller Info: The controller keeps track of blackout information.

II. Program Menu

Accessing Program Menus – Password

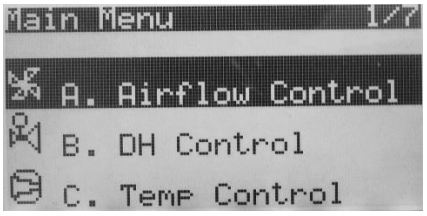
Press the Program button to access the Program Menus which are password protected. Two levels of accessibility are available: Service Technician and Manufacturer. When the Program button is pressed, one of these passwords must be entered. Once in the Program menus, all screens are visible; however, the unit config screens

Program Menus

ARROW DOWN to highlight the desired menu and ENTER.

A. **Airflow Control**
B. **DH Control**
C. **Temp Control** – Not applicable for Basic Units
D. **Unit Config** – some screens require Manufacturer password to make edits
E. **Alarm Logs**
F. **Settings** – some settings require Manufacturer password to make edits
G. **Logout**

A. Airflow Control



Airflow Control

Select Supply Fan Mode:

- **CYCLE** as Needed
- **CONSTANT**

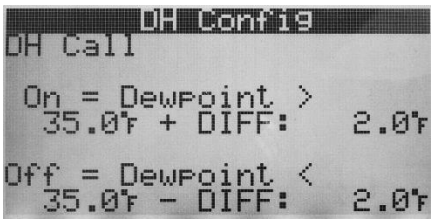
CYCLE as Needed: Supply Fan will only run on DH Call.

CONSTANT: Supply Fan runs continuously with or without DH Call.

Supply Fan must run **60 seconds** (default) before DH is allowed to run.

B. DH Control

1. DH Call Parameters



DH Call Parameters

DH Call is turned on when dew point is greater than 35.0°F plus a differential of 2.0°F. DH Call is turned off when dew point is less thatn 35.0°F minus a differential of 2.0°F.

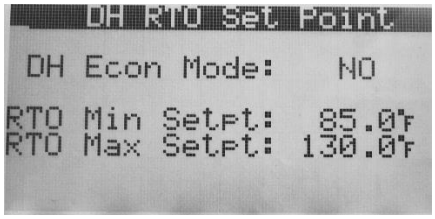
DH Minimum Off Time is 30 seconds.

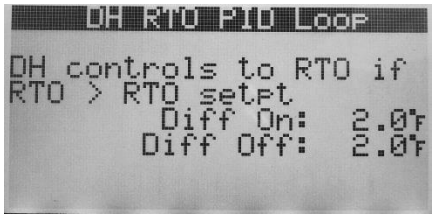
On regen start, energy output is forced to 50.0% for 30 seconds.

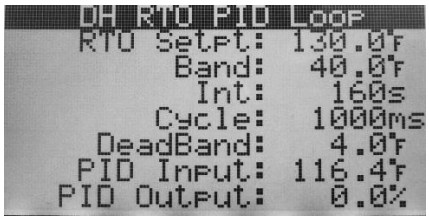
Furnace modulation will delay on for 30 seconds to allow for flame ignition.

On regen stop, the regen fan remains on for 60 seconds.

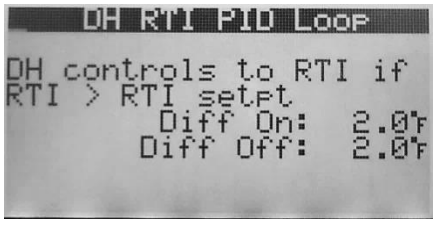
2. RTO PID Loop Parameters

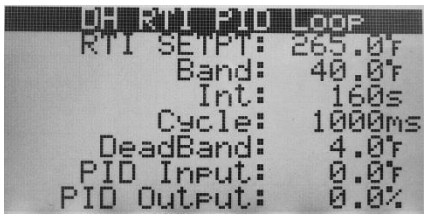


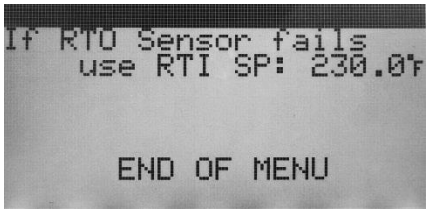




3. RTI PID Loop Parameters







RTO PID Loop Parameters

When DH Econ Mode is set to NO, RTO PID loop runs according to RTO Max set point 130.0°F. If DH Econ Mode is set to YES, RTO PID loop runs to a set point automatically reset by standard deviation between RTO Min and Max Set Points.

DH is controlled to a combination of RTO and RTI PID loops. There is a request to control DH to RTO if RTO is greater than RTO set point with differential on 2.0°F and differential off 2.0°F. There is a request to control DH to RTI if RTI is greater than RTI set point with differential on 2.0°F and differential off 2.0°F. RTI PID Loop has priority until RTO has been satisfied.

PID Parameters

- **Set Point**
- **Band (larger =slower)**
- **Integral (larger = slower)**
- **Cycle**
- **DeadBand**

PID Input and PID Outputs are just status values for help in tuning PID loops.

C. Temp Control (Not available for BASIC DH units)

1. Post Cool Call & PID Loop Parameters

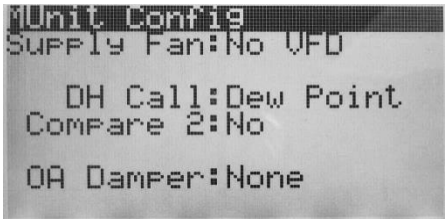
2. Post Heat Call & PID Loop Parameters

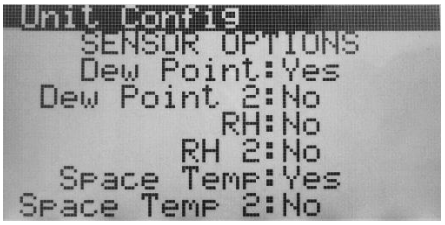
3. Pre Cool Call & PID Loop Parameters

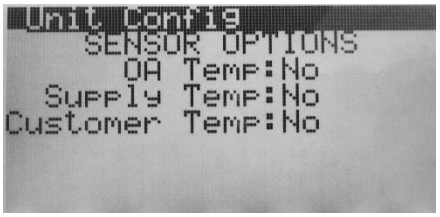
4. Pre Heat Call & PID Loop Parameters

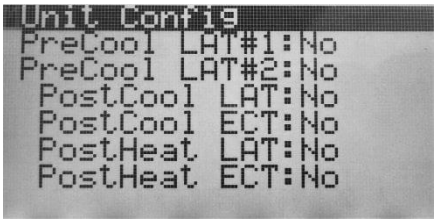
D. Unit Config – (Manufacturer Password Required)

1. Unit Setup



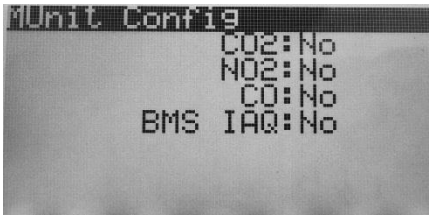


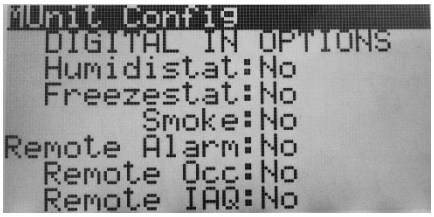


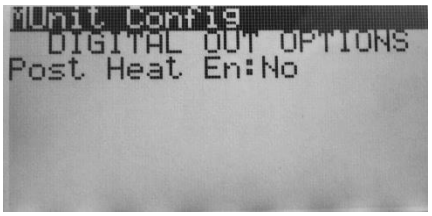


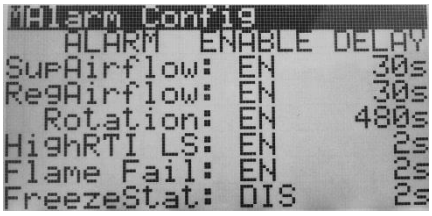
Unit Setup

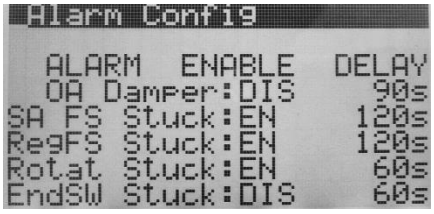
All of these unit configuration settings should already be set to correspond to the physical unit. These settings may be changed if the physical unit is changed.

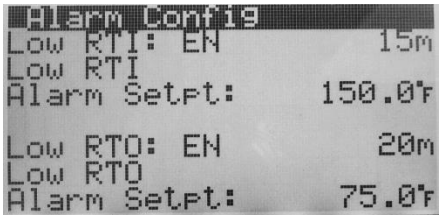


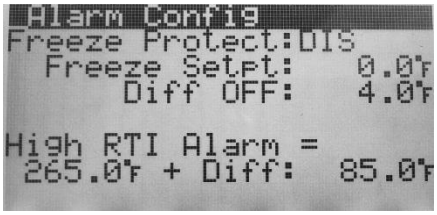












Alarm Configuration

All Alarm Enable settings should already be set to correspond to the physical unit. These settings may be changed if the physical unit is changed.

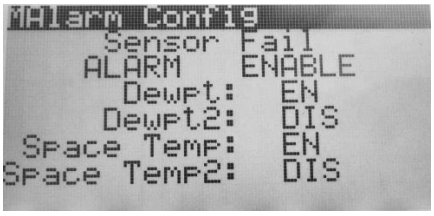
Alarm Delay times may be modified.

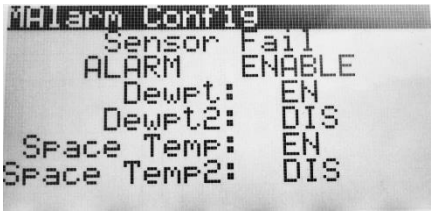
Low RTI Alarm set point is 150.0°F.

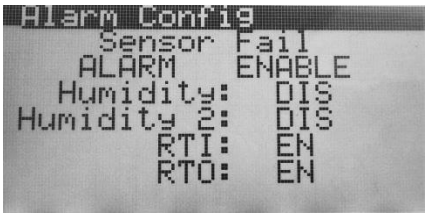
Low RTO Alarm set point is 75.0°F.

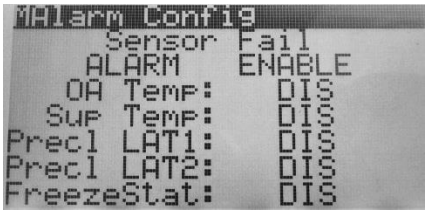
Freeze Alarm set point is 0.0°F with differential off 4.0°F.

High RTI Alarm set point is 265°F plus 85.0°F.





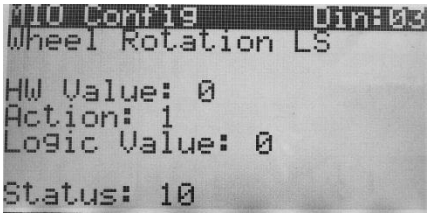


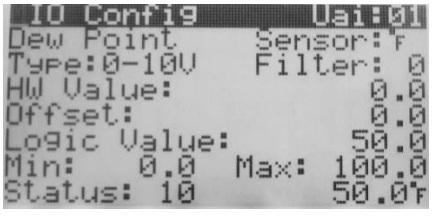


Sensor Fail Alarms

All Sensor Fail Alarm Enable settings should already be set to correspond to the physical unit. These settings may be changed if the physical unit is changed.

2. Config Inputs



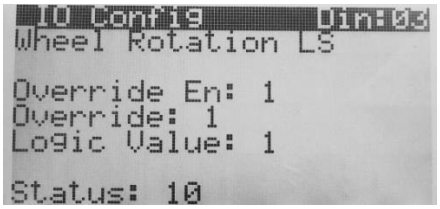


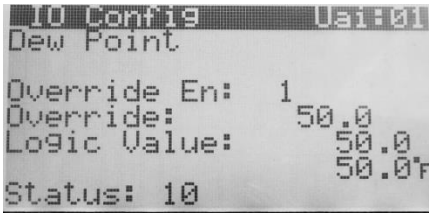
Config Inputs

All IO settings should already be set to correspond to the physical unit. These settings may be changed if the physical unit is changed.

- IO Channel is shown in top right corner.
- Normally open inputs should have the Action set to 1.
- Logic Value is the value the program uses in its computations.
- Status will be 10 if the IO point is not in error.
- Sensor Range is configured via Min and Max values.

3. Override Inputs

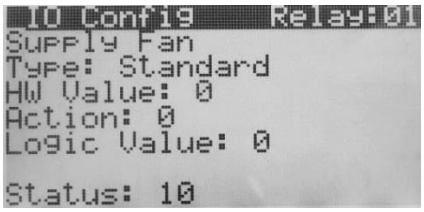


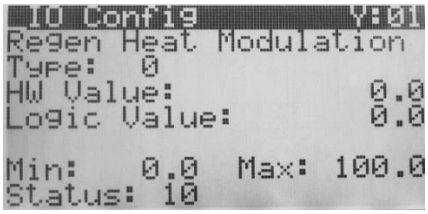


Override Inputs

Forcing on/off digital inputs and forcing values of analog inputs should only be used for troubleshooting purposes.

4. Config Outputs



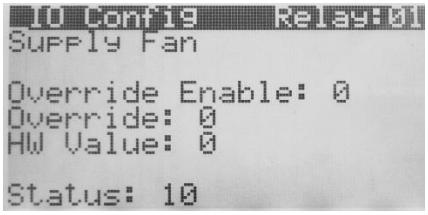


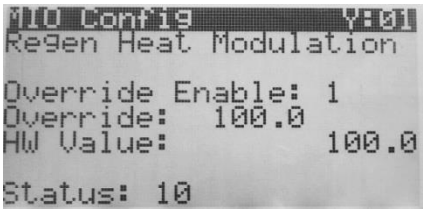
Config Outputs

All IO settings should already be set to correspond to the physical unit. These settings may be changed if the physical unit is changed.

- IO Channel is shown in top right corner.
- Normally open outputs should have the Action set to 0.
- Logic Value is the value the program uses in its computations.
- Status will be 10 if the IO point is not in error.
- Output Range is configured via Min and Max values. Output range of 0.0-100.0 corresponds to 0.0-10.0V

5. Override Outputs

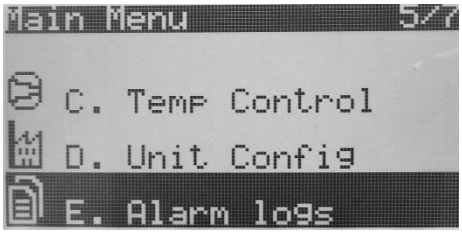


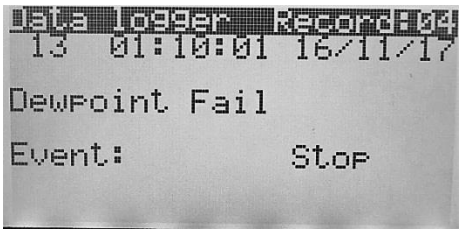


Override Outputs

Forcing on/off digital outputs and forcing values of analog outputs should only be used for troubleshooting purposes.

E. Alarm Logs



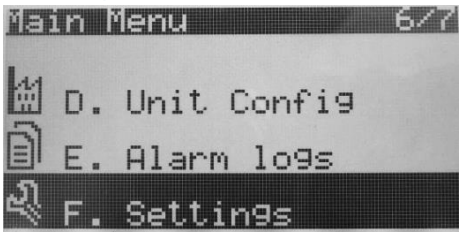


Alarm Logs

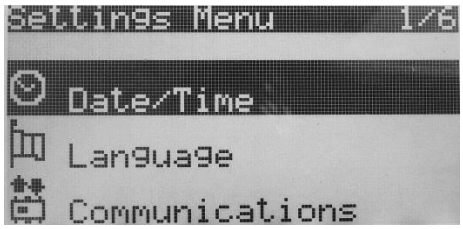
All alarms are date and time stamped.
Alarm log records the beginning of the alarm and when the alarm is cleared.

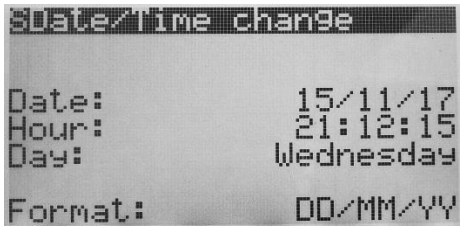
Alarm log can be cleared via the Initialization menu.

F. Settings

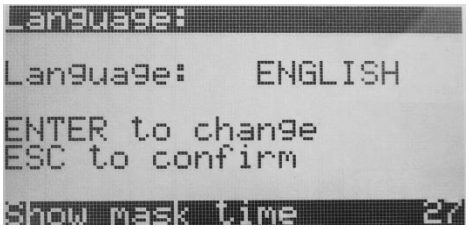


1. Date/Time

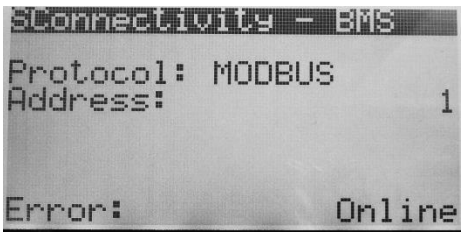


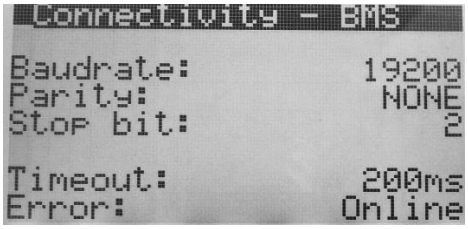


2. Language



3. Communications



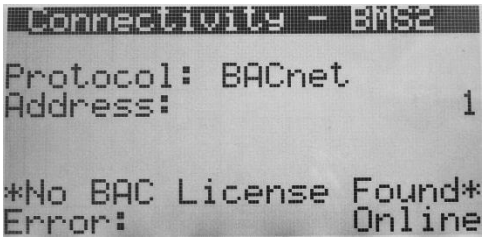


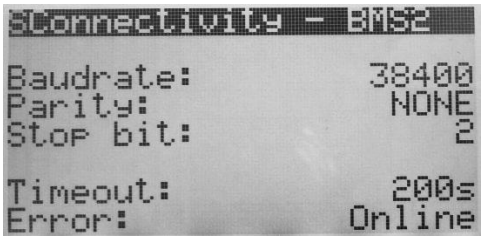
Communications

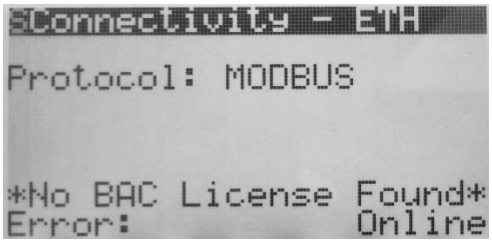
BACnet MSTP networks connected to the c.pCO at port J25 BMS2 need to page down to the **Connectivity- BMS2** screens and set the appropriate settings required by the customer.

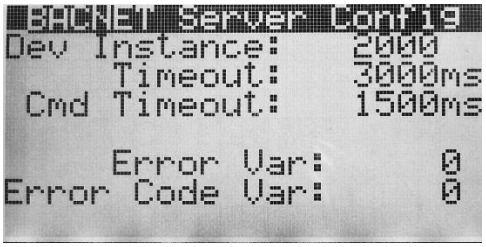
If BMS2 Connection:
Leave this BMS 1 page as is.

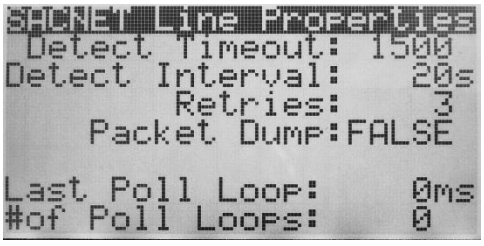
If BMS2 Connection:
Leave this BMS 1 page as is.











Communications – BMS2

If BMS2 Connection:
Set Protocol to BACnet

BACnet License must be installed (unlike this example)

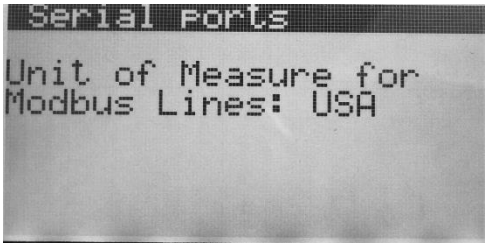
Baudrate is typically set to 38400.
Parity and Stop Bit should be set per customer.

If BMS2 Connection:
Leave this Ethernet page as is.

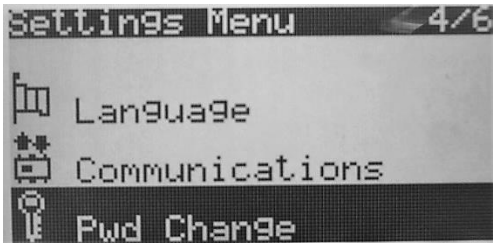
Set Device Instance, Timeout, and Cmd Timeout per customer requirements.

Set Detect Timeout, Detect Interval, Reties, Packet Dump per customer requirements.

Set the Station Address (what number device on the network - not 0!), Max Master, and Max Info Frams per customer requirements.



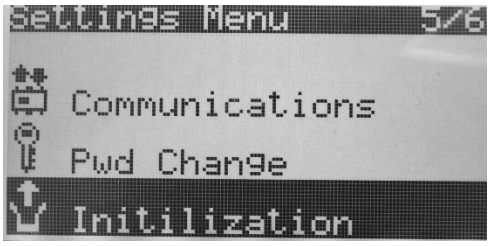
4. Pwd Change

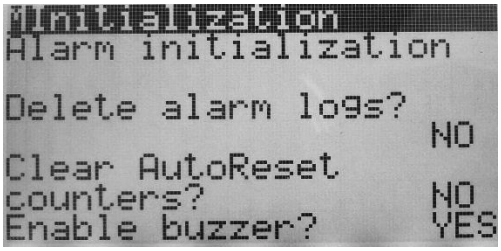


Change Password

Currently User & Service accessibility are the same so the passwords should be set the same.

5. Initialization



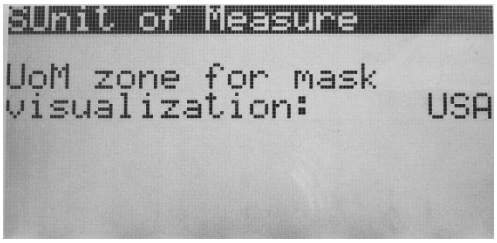


Initialization

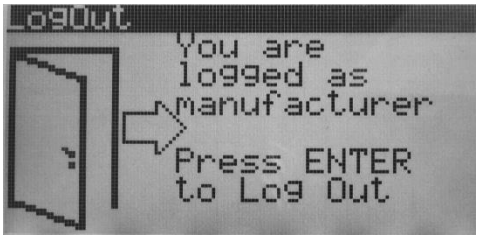
Delete alarm logs here.

Disable annoying alarm buzzer here.

6. UoM



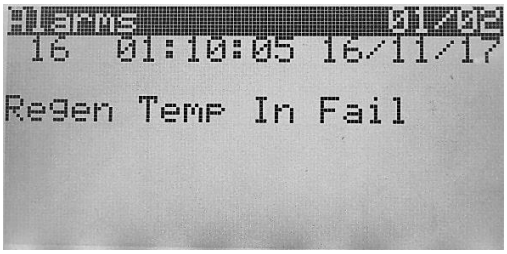
G. Logout

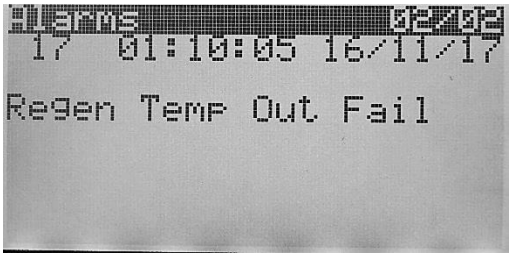


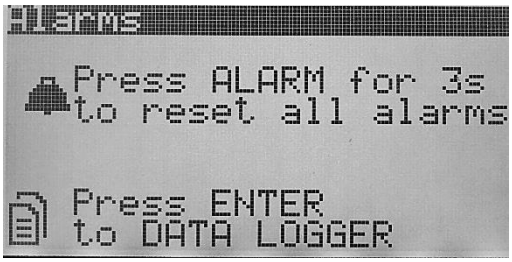
Logout

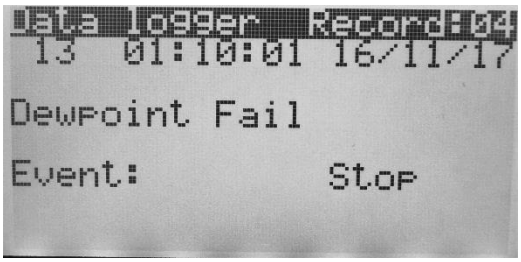
When leaving the program menus for good, logout so that unauthorized personnel cannot gain access.

III. Alarms









Alarms

The Alarm button will blink red indicating there is an active alarm. Pressing the Alarm button will acknowledge the alarm and the Alarm button will turn solid red. The Alarm message will be displayed.

ARROW DOWN to scroll through all active alarms.

Press Alarm button for 3 seconds to reset all alarms.

Press ENTER to go to the Alarm Logger mentioned above. Alarm log can be cleared via the Initialization menu.

All alarms are date and time stamped. Alarm log records the beginning of the alarm and when the alarm is cleared.